



NOAA National Weather Service Air Quality Program

National Air Quality Awareness Week

The National Weather Service (NWS), the U.S. Environmental Protection Agency (EPA), and the U.S. Centers for Disease Control and Prevention urge Americans to be aware of “Show How You Care About the Air” during Air Quality Awareness Week, which runs from May 2-6, 2016.

The goal of Air Quality Awareness Week is to provide information on outdoor air pollution and its impact on the quality of the air we breathe. A different air quality topic will be addressed each day around the theme “Show How You Care about the Air”, from the causes of poor air quality and how air quality predictions are made, to how to protect yourself on poor air quality days, trends in air quality, and steps you can take to improve the quality of the air we breathe.

For more information on Air Quality Awareness Week, please go to [NWS Air Quality Awareness \(www.airquality.noaa.gov\)](http://www.airquality.noaa.gov).

Our Nation’s Air Quality Forecast Capability

Have you checked the NWS’ air quality forecast guidance lately? Exposure to ozone and fine particulate matter is responsible for tens of thousands¹ of premature deaths each year in the US. For the last few years, the NWS, in conjunction with the EPA, has produced forecast guidance out to 48 hours for predicted surface concentrations of ozone and smoke nationwide, and predictions of surface concentrations of dust over the lower 48 states (CONUS).

NOAA NWS’ hour-by-hour forecast guidance, at 12km grid resolution, shows when and where predicted values of ozone, smoke from wildfires, and dust from dust storms are expected to reach harmful levels, whether in cities, suburbs or rural areas. We have been working to provide the United States with ozone, particulate matter and other pollutant forecasts with enough accuracy and advance notice to allow people to take action to prevent or reduce adverse effects.

¹ Fann, N., Lamson, A. D., Anenberg, S. C., Wesson, K., Risley, D. and Hubbell, B. J. (2012), Estimating the National Public Health Burden Associated with Exposure to Ambient PM_{2.5} and Ozone. Risk Analysis, 32: 81–95.
doi:10.1111/j.1539-6924.2011.01630.x

Ozone forecasts are produced with a linked numerical predictions system: Nonhydrostatic Meteorological model on the B grid (NMMB) predictions drive the Community Multiscale Air Quality (CMAQ) model developed by NOAA researchers for the US EPA. Predictions of fine particulate matter (PM_{2.5}) are produced and have been publicly available from the same system since February 2016. EPA provides the information on pollutant emissions and monitoring data on ground-level ozone and fine particles. This information is used in the verification and evaluation of developmental products.

The Smoke Forecast Tool integrates NOAA's National Environmental Satellite, Data, and Information Service's (NESDIS) satellite information on the location of wildfires, with NWS weather inputs from its NMMB model, and smoke dispersion simulations from NOAA's Office of Oceanic and Atmospheric Research's HYSPLIT model, to produce a daily 48-hour prediction of smoke transport and concentration. The model also incorporates U.S. Forest Service estimates for wildfire smoke emissions based on vegetation cover.

Dust forecasts over CONUS are standalone predictions of airborne dust from dust storms. Source regions with emission potential are estimated from the climatology of Moderate Resolution Imaging Spectroradiometer (MODIS) Deep Blue aerosol retrievals. Dust emissions are predicted when surface winds exceed thresholds over source regions and they are modulated by real-time soil moisture information. The HYSPLIT model combines NMMB weather inputs with dust emissions to predict transport, dispersion, and deposition of dust, resulting in 48-hour prediction of dust concentrations.

State and local air quality forecasters, for more than 400 communities across the US, interpret NWS guidance, along with air pollution monitoring data and other inputs, to provide next-day alerts of impending poor air quality. About 100 of those communities issue alerts for both ozone and fine particulate matter, while the others issue alerts for ozone only. Next day local forecasts are available at www.airnow.gov.

Our NWS Weather Forecast Offices (WFOs) and our National Centers for Environmental Prediction (NCEP) are encouraged to share their weather expertise in coordination with their corresponding state and local air quality forecasters. Since the initial operational implementation of NWS' air quality forecast guidance in 2004, NWS forecasters have been increasing their working partnerships with state and local air quality forecasters.

NWS Air Quality Forecast Guidance is available on the web at <http://airquality.weather.gov>.

Additional experimental ozone predictions, from coast to coast, are available on <http://airquality.weather.gov/expr>.

Detailed information on our Air Quality Forecasts is available at http://www.nws.noaa.gov/ost/air_quality/.

If you have questions on NWS' Air Quality Forecasting Program, please feel free to contact Jannie Ferrell, our NWS AFSSO's Severe, Fire, Public, and Winter Weather Services Branch Air Quality Forecasting Outreach Coordinator, at jannie.g.ferrell@noaa.gov (301-427-9356), OR Ivanka Stajner, our NOAA/NWS/OST Program Manager, National Air Quality Forecast Capability, at ivanka.stajner@noaa.gov (301-427-9103).